UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,121	02/08/2002	Peter A. Thayer	79-00-001 (014208.1394)	2574

35005 7590 05/31/2006

BAKER BOTTS L.L.P.
2001 ROSS AVENUE, 6TH FLOOR
DALLAS, TX 75201

EXAMINER	
MARCELO, MELVIN C	
ART UNIT	PAPER NUMBER
2616	

DATE MAILED: 05/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/072,121	THAYER ET AL.	
	Examiner	Art Unit	
	Melvin Marcelo	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 March 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-26 and 28-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-18, 20-26 and 28-46* is/are rejected.

7)☒ Claim(s) *19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 3-10-2006 have been fully considered but they are not persuasive.

Applicant argues that there is no analysis of messages received in the processor in Raichle and no predetermined criteria set by the diagnostic system. However, Raichle teaches that :

> *Processor 102 is programmed to provide modulated RF output signals of vehicle data to a remote diagnostic technician. Based upon requests received from an RF remote station, processor 102 runs selected communication routines to communicate with selected motor vehicle control units (column 4, lines 22-27).*

In order to communicate with selected motor vehicle control units, the processor 102 must distinguish the data from the selected motor vehicle control units from those that are not selected since the processor 102 is coupled to the vehicle bus and receives all the data on the bus through the Voltage Level Translator 110 and FPGA 114 (Figure 1A and column 3, line 48 to column 4, line 10). The function of distinguishing data from selected motor vehicle control units and non-selected motor vehicle control units is an "analysis" function. Further, the criteria for distinguishing a selected unit from a non-selected unit is pre-determined data from the remote diagnostic technician requesting selected communication routines associated with selected motor vehicle control units. At a minimum, the modulated RF output signals of vehicle data to a remote diagnostic technician would include those corresponding to the request. For example, Raichle recites control units for engine, transmission, brakes and the steering mechanism (column 1, lines 14-18). A remote diagnostic technician can request the processor to run communication routines to communicate with the selected motor vehicle control unit associated with the brakes. The processor communicates with the brakes control unit by

distinguishing this data from other control units such as from a steering mechanism control unit. Further, the remote diagnostic technician would expect to receive as output signals data associated with the brakes control unit since the technician expects a reply to a request in order to diagnose problems associated with the brakes. In summary, a remote diagnostic technician, who wants to check the brakes, sends a request to the processor to run selected communication routines to communicate with selected motor vehicle control units associated with the brakes; in order to provide a remote diagnosis of the brakes, the technician must receive from the processor data associated with the selected motor vehicle control units associated with the brakes.

With respect to the inherent determination of the destination address, Raichle's Figure 1C shows remote diagnostic workstations 166 and 168 on a LAN. Each remote workstation has a distinguishable destination address. Since the processor is responding to requests from a particular remote workstation, it must send its reply to the particular remote workstation which is distinguishable by its destination address.

With respect to applicant's admitted prior art, applicant does not dispute that J1850 protocol, as well as the J1939 and J1587 protocols, are known (specification, page 9, lines 9-12).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 4-10, 12, 15, 17, 21-26, 28, 30, 33, 35-40 and 42-45 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Raichle et al. (US 6,603,394 B2).

With respect to the claims below, references to the prior art appear in parenthesis.

Claims

1. A system for vehicle protocol conversion **(Raichle, Figure 1A and column 3, lines 4-8, multi-protocol communication interface for vehicle)**, *comprising:*

a bus connector adapted to be coupled to a vehicle bus **(Bus connector 124 (column 3, lines 58-61) wherein interface 116 connects to the control units coupled to vehicle sensors and actuators (column 1, lines 14-24) via buses with various voltage levels)**;

a protocol transceiver coupled to the bus connector **(FPGA 114 and Voltage Level Translator 110 are the protocol transceiver coupled to the connector 124 (column 3, line 20 to column 4, line 17) wherein translation of the signal to the appropriate protocol occurs)**, *the protocol transceiver operable to:*

receive messages destined for communication through the bus connector and send the messages through the bus connector according to a vehicle bus protocol **(Signals received from wireless communication module 100 to motor vehicle control unit destined through the bus connector 124 (column 3, lines 38-41))**, *and*

receive messages through the bus connector according to the vehicle bus protocol **(Signals received from a motor vehicle control unit through bus connector 124 (column 3, lines 26-36)**;

a computer coupled to the protocol transceiver **(Processor 102 coupled to FPGA 114)**, *the computer operable to:*

analyze the messages received through the bus connector to determine whether the messages should be transmitted to a diagnostic system, the determination based on

predetermined criteria **(The predetermined criteria is whether the vehicle data is the one requested by the remote diagnostic technician (column 4, lines 22-27))** *set by the diagnostic system* **(Analysis based on requests from remote diagnostic technician for the processor to run selected communication routines to communicate with selected motor vehicle control units (column 4, lines 18-27))**, *and*

receive the messages destined for communication through the bus connector **(Requests are messages destined for communication through the bus connector 124 resulting in communication routines for communication with selected motor vehicle control units (column 4, lines 25-27))**; *and*

a wireless communication device coupled to the computer **(RF interface 104 coupled to processor 102)**, *the wireless communication device, using a wireless link, operable to transmit the messages that should be transmitted and receive the messages destined for communication through the bus connector* **(Transmitted messages are the responses to the received requests destined to vehicle control units from a remote diagnostic technician (column 4, lines 18-27))**.

2. The system of claim 1, wherein the computer is further operable to:

format the messages to be transmitted for communication to the wireless communication device **(Processor 102 provides packet format signals to RF interface 104 which includes a transceiver and modem (column 4, lines 18-22), packets include addresses (column 5, lines 6-9))**, *and*

format the messages destined for communication through the bus connector for the protocol transceiver **(Command packets received from the technician results in protocol specific signals presumably formatted according to the particular vehicle control unit protocol (column 5, lines 37-53))**.

4. The system of claim 1, wherein the computer examines the destination address of the messages to determine whether the messages satisfy predetermined criteria **(Packetized messages for the remote diagnostic technician must inherently be checked in order to determine that they are addressed to the proper destination workstation that requested the data since there can be more than one workstation (Figure 1C and column 5, lines 6-8 and lines 16-63)).**

5. The system of claim 1, wherein the computer has a plurality of predetermined criteria sets **(Plurality of predetermined criteria sets corresponds to a plurality of requests from the remote diagnostic technician (column 4, lines 222-27) and data resulting from the plurality of control units coupled to the plurality of sensors and actuators that are targeted by the requests (column 1, lines 14-19)).**

6. The system of claim 1, wherein the computer is further operable to analyze the messages destined for communication through the bus connector to determine whether they should be sent through the bus connector **(Received packets from the technician must be analyzed in order to determine that they are intended for the control units within the particular vehicles since packets for other vehicles are also being transmitted (column 5, lines 54-57)).**

7. The system of claim 1, wherein: the wireless communication device is further operable to receive messages destined for the computer **(Remote diagnostic technician sends requests with destination addresses for the wireless communication modules 100 associated with the processor 102 (column 5, lines 6-9));** *and the computer is further operable to determine if the messages are destined for it* **(Messages from the remote diagnostic technician 130 must be specifically addressed to the destination wireless communication module (column 5, lines 6-9)).**

8. The system of claim 7, wherein at least some of the messages destined for the computer specify criteria for determining whether messages received through the bus connector should be transmitted **(The predetermined criteria is whether the vehicle data is the one requested by the remote diagnostic technician (column 4, lines 22-27)).**

9. The system of claim 1, further comprising a second protocol transceiver coupled to the bus connector and the computer **(FPGA 114 includes a plurality of protocol transceivers modules 200 to 214 (Figure 2 and column 5, line 64 to column 6, line 25)),** *the second protocol transceiver* **(Eight protocol modules 200 to 214)** *operable to:*

receive messages destined for communication through the bus connector and send the messages through the bus connector according to a second vehicle bus protocol **(FPGA 114 receives requests which is transmitted to the vehicle control unit according to the control unit's protocol (column 3, lines 62-67));** *and*

receive messages through the bus connector according to the second vehicle bus protocol **(FPGA 114 receives data from the vehicle control unit according to the control unit's protocol (column 3, lines 62-67)).**

10. The system of claim 9, wherein the computer is further operable to select, for a message destined for communication through the bus connector, which of the protocol transceivers will send the message **(Processor selects the appropriate protocol module 200 to 214 based on the technician's request destined to a particular vehicle control unit which protocol transceiver to use since the same vehicle may have multiple communication protocols (column 9, lines 1-5)).**

12. The system of claim 1, wherein the computer comprises a memory operable to store messages received through the bus connector for transmission upon the establishment of a wireless link **(Memory 108 appears to be the message buffer for the processor 102**

(column 4, lines 28-44) since non-volatile memory 118 and 120 holds program specific data and received vehicle data needs to be packetized with addressing information in order to transmit over the wireless link (column 5, lines 5-12)).

15. The system of claim 1, wherein the computer is further operable to perform the operations of a node on a vehicle bus **(Processor performs nodal operations of reading error codes and sending test signals to the vehicle control unit on the vehicle bus associated with the various actuators and sensors (column 4, lines 14-17)).**

17. The system of claim 1, wherein the computer is further operable to manage messages to be transmitted over the wireless link **(Processor manages the destination of the messages to the appropriate requesting remote workstation associated with the diagnostic technician since there can be a plurality of remote workstations sending requests (column 5, lines 54-57)).**

21. A method for vehicle protocol conversion **(Raichle, Figure 1A and column 3, lines 4-8, multi-protocol communication interface for vehicle),** *comprising:*

receiving messages through a vehicle bus connector according to a vehicle bus protocol **(Bus connector 124 (column 3, lines 58-61) wherein interface 116 connects to the control units coupled to vehicle sensors and actuators (column 1, lines 14-24) via buses with various voltage levels);**

analyzing the messages to determine whether the messages should be transmitted to a diagnostic system, the determination based on predetermined criteria **(The predetermined criteria is whether the vehicle data is the one requested by the remote diagnostic technician (column 4, lines 22-27))** *set by the diagnostic system* **(Analysis based on requests from remote diagnostic technician for the processor to run selected**

communication routines to communicate with selected motor vehicle control units (column 4, lines 18-27); *and*

transmitting the messages over a wireless link if they should be transmitted **(Transmitted messages are the responses to the received requests from a remote diagnostic technician (column 4, lines 18-27))**.

22. The method of claim 21, further comprising:

receiving, over the wireless link, messages destined for communication through the vehicle bus connector **(Requests are messages destined for communication through the bus connector 124 resulting in communication routines for communication with selected motor vehicle control units (column 4, lines 25-27))**; *and*

sending the messages through the bus connector according a vehicle bus protocol **(Signals received from wireless communication module 100 to motor vehicle control unit destined through the bus connector 124 (column 3, lines 38-41))**.

23. The method of claim 22, further comprising analyzing the messages destined for communication through the vehicle bus connector to determine whether they should be sent through the vehicle bus connector **(Received packets from the technician must be analyzed in order to determine that they are intended for the control units within the particular vehicles since packets for other vehicles are also being transmitted (column 5, lines 54-57))**.

24. The method of claim 22, further comprising: formatting the messages to be transmitted for transmission over the wireless link **(Processor 102 provides packet format signals to RF interface 104 which includes a transceiver and modem (column 4, lines 18-22), packets include addresses (column 5, lines 6-9))**; *and formatting the messages destined for communication through the bus connector for communication through the bus connector*

(Command packets received from the technician results in protocol specific signals presumably formatted specifically for the particular protocol (column 5, lines 37-53)).

25. The method of claim 21, further comprising selecting which of a plurality of protocol transceivers will send a message through the bus connector according to a vehicle bus protocol ***(Processor selects based on the technician requests which protocol transceiver to use since the same vehicle may have multiple communication protocols (column 9, lines 1-5)).***

26. The method of claim 21, wherein analyzing the messages comprises determining whether the messages satisfy a plurality of sets of predetermined criteria **(The predetermined criteria is whether the vehicle data is the one requested by the remote diagnostic technician since the request results in the processor running selected communication routines to communicate with selected motor vehicle control units (column 4, lines 22-27), the plurality of sets corresponding to a plurality of selected motor vehicle control units).**

28. The method of claim 21, further comprising:

receiving, over the wireless link, messages containing the predetermined criteria **(The predetermined criteria is whether the vehicle data is the one requested by the remote diagnostic technician (column 4, lines 22-27));**

identifying the messages **(Messages from the remote diagnostic technician 130 must be specifically addressed to the destination wireless communication module (column 5, lines 6-9));** *and*

implementing the criteria **(Processor 102 implements the criteria by controlling the transmission of the vehicle data).**

30. The method of claim 21, further comprising storing messages received through the bus connector and transmitting the messages upon the establishment of a wireless link **(Memory 108 appears to be the message buffer for the processor 102 (column 4, lines 28-44) since non-volatile memory 118 and 120 holds program specific data and received vehicle data needs to be packetized in order to transmit over the wireless link (column 5, lines 5-12)).**

33. The method of claim 21, further comprising managing messages to be transmitted over the wireless link **(Processor manages the destination of the messages to the appropriate requesting remote workstation associated with the diagnostic technician since there can be a plurality of remote workstations sending requests (column 5, lines 54-57)).**

35. A system for vehicle protocol conversion **(Raichle, Figure 1A and column 3, lines 4-8, multi-protocol communication interface for vehicle)**, *comprising:*

means for receiving messages through a vehicle bus connector according to a vehicle bus protocol **(Bus connector 124 (column 3, lines 58-61) wherein interface 116 connects to the control units coupled to vehicle sensors and actuators (column 1, lines 14-24) via buses with various voltage levels)**;

means for analyzing the messages to determine whether the messages should be transmitted to a diagnostic system, the determination based on a predetermined criteria **(The predetermined criteria is whether the vehicle data is the one requested by the remote diagnostic technician (column 4, lines 22-27))** *set by the diagnostic system* **(Analysis based on requests from remote diagnostic technician for the processor to run selected communication routines to communicate with selected motor vehicle control units (column 4, lines 18-27))**; *and*

means for transmitting the messages over a wireless link if they should be transmitted **(Transmitted messages are the responses to the received requests from a remote diagnostic technician (column 4, lines 18-27)).**

36. The system of claim 35, further comprising:

means for receiving, over the wireless link, messages destined for communication through the vehicle bus connector **(Requests are messages destined for communication through the bus connector 124 resulting in communication routines for communication with selected motor vehicle control units (column 4, lines 25-27));**

means for analyzing the messages to determine whether they should be sent through the vehicle bus connector **(Received packets from the technician must be analyzed in order to determine that they are intended for the control units within the particular vehicles since packets for other vehicles are also being transmitted (column 5, lines 54-57));** *and*

means for sending the messages through the bus connector according a vehicle bus protocol if they should be sent through the vehicle bus connector **(FPGA 114 receives requests which is transmitted to the vehicle control unit according to the control unit's protocol (column 3, lines 62-67)).**

37. The system of claims 35, further comprising means for selecting which of a plurality of protocol transceivers will send a message through the bus connector according to a vehicle bus protocol **(Processor selects based on the technician requests which protocol transceiver to use since the same vehicle may have multiple communication protocols (column 9, lines 1-5)).**

38. The system of claim 35, wherein analyzing the messages comprises determining whether the messages satisfy a plurality of sets of predetermined criteria **(The predetermined criteria is whether the vehicle data is the one requested by the remote diagnostic**

technician since the request results in the processor running selected communication routines to communicate with selected motor vehicle control units (column 4, lines 22-27), the plurality of sets corresponding to a plurality of selected motor vehicle control units).

39. The system of claim 35, further comprising:

means for receiving, over the wireless link, messages containing the predetermined criteria **(The predetermined criteria is whether the vehicle data is the one requested by the remote diagnostic technician (column 4, lines 22-27));**

means for identifying the messages **(Messages from the remote diagnostic technician 130 must be specifically addressed to the destination wireless communication module (column 5, lines 6-9));** *and*

means for implementing the criteria **(Processor 102 implements the criteria by controlling the transmission of the vehicle data).**

40. The system of claim 35, further comprising means for storing information to be sent over the wireless link **(Memory 108 appears to be the message buffer for the processor 102 (column 4, lines 28-44) since non-volatile memory 118 and 120 holds program specific data and received vehicle data needs to be packetized in order to transmit over the wireless link (column 5, lines 5-12)).**

42. The system of claim 35, further comprising means for managing messages to be transmitted over the wireless link **(Processor manages the destination of the messages to the appropriate requesting remote workstation associated with the diagnostic technician since there can be a plurality of remote workstations sending requests (column 5, lines 54-57)).**

43. A system for vehicle protocol conversion **(Raichle, Figure 1A and column 3, lines 4-8, multi-protocol communication interface for vehicle)**, *comprising:*

a bus connector adapted to be coupled to a vehicle bus **(Bus connector 124 (column 3, lines 58-61) wherein interface 116 connects to the control units coupled to vehicle sensors and actuators (column 1, lines 14-24) via buses with various voltage levels)**;

a plurality of protocol transceivers coupled to the bus connector **(FPGA 114 includes a plurality of protocol transceivers 206 to 214 (Figure 2 and column 5, line 64 to column 6, line 25))**, *each protocol transceiver* **(FPGA 114 and Voltage Level Translator 110 are the protocol transceiver coupled to the connector 124 (column 3, line 20 to column 4, line 17) wherein translation of the signal to the appropriate protocol occurs)** *operable to:*

receive messages destined for communication through the bus connector and send the messages through the bus connector according to a vehicle bus protocol **(FPGA 114 receives requests destined for vehicle control units which is transmitted through the bus connector 124 according to the control unit's protocol (column 3, lines 62-67))**, *and*

receive messages through the bus connector according to the vehicle bus protocol **(FPGA 114 receives data from the vehicle control unit according to the control unit's protocol (column 3, lines 62-67))**;

a computer coupled to the protocol transceivers **(Processor 102 coupled to FPGA 114)**, *the computer operable to:*

receive the messages received through the bus connector and determine whether the messages should be transmitted to a diagnostic system, the determination based on predetermined criteria **(The predetermined criteria is whether the vehicle data is the one requested by the remote diagnostic technician (column 4, lines 22-27))** *set by the diagnostic system* **(Analysis based on requests from remote diagnostic technician for the**

processor to run selected communication routines to communicate with selected motor vehicle control units (column 4, lines 18-27)),

receive the messages destined for communication through the bus connector **(Requests are messages destined for vehicle control units through the bus connector 124 resulting in communication routines for communication with selected motor vehicle control units (column 4, lines 25-27))**, *determine whether they should be sent through the bus connector* **(Received packets from the technician must be analyzed in order to determine that they are intended for the control units within the particular vehicles since packets for other vehicles are also being transmitted (column 5, lines 54-57))**, *and select between the protocol transceivers for sending the messages through the bus connector* ***(Processor selects based on the technician requests which protocol transceiver to use since the same vehicle may have multiple communication protocols (column 9, lines 1-5))***, *and*

determine whether received messages are destined for it **(Messages from the remote diagnostic technician 130 must be specifically addressed to the destination wireless communication module associated with the processor 102 (column 5, lines 6-9))** *and*

a wireless communication device coupled to the computer **(RF interface 104 coupled to processor 102)**, *the wireless communication device, using a wireless link, operable to transmit the messages that should be transmitted* **(Transmitted messages are the responses to the received requests from a remote diagnostic technician (column 4, lines 18-27))**, *receive the messages destined for communication through the bus connector* **(Requests are messages destined for communication through the bus connector 124 resulting in communication routines for communication with selected motor vehicle control units (column 4, lines 25-27))**, *and receive message destined for the computer* **(Remote diagnostic**

technician sends requests with destination addresses for the wireless communication modules 100 associated with the processor 102 (column 5, lines 6-9)).

44. The system of claim 43, wherein the computer has a plurality of predetermined criteria sets for determining whether messages received through the bus connector should be transmitted **(Plurality of predetermined criteria sets corresponds to a plurality of requests from the remote diagnostic technician (column 4, lines 222-27) and corresponding received data from the plurality of control units coupled to the plurality of sensors and actuators that are targeted by the requests (column 1, lines 14-19)).**

45. The system of claim 43, wherein at least some of the messages destined for the computer specify criteria for determining whether messages received through the bus connector should be transmitted **(The predetermined criteria is whether the vehicle data is the one requested by the remote diagnostic technician (column 4, lines 22-27)).**

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 11 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raichle et al. in view of applicant's admitted prior art.

Raichle teaches a protocol transceiver module corresponding to the J1850 protocol (column 6, lines 11-14). Raichle does not include the J1939 and J1597 protocols, but does suggest using a plurality of known vehicle protocols (column 3, lines 5-19). A skilled artisan would have been motivated to include other known vehicle protocols into Raichle's system since

Raichle suggests using known vehicle protocols. Applicant admits that the J1850 protocol, as well as the J1939 and J1587 protocols, are known (specification, page 9, lines 9-12). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide protocol transceiver modules corresponding to the J1939 and J1587 protocols since Raichle suggests using known vehicle protocols.

With respect to the claims below, references to the prior art appear in parenthesis.

Claims

11. The system of claim 9, wherein the first protocol transceiver is operable to send and receive messages through the bus connector according to J1939 and the second protocol transceiver is operable to send and receive messages through the bus connector according to J1587 **(Raichle suggests using a plurality of known vehicle protocols (column 3, lines 5-19), wherein applicant admits that J1939 and J1587 are known vehicle protocols (specification, page 9, lines 9-12))**.

29. The method of claim 21, wherein the vehicle bus protocol comprises J1939 **(Raichle suggests using a plurality of known vehicle protocols (column 3, lines 5-19), wherein applicant admits that J1939 and J1587 are known vehicle protocols (specification, page 9, lines 9-12))**.

6. Claims 13, 14, 16, 20, 31, 32, 41 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raichle et al. in view of Witkowski et al. (WO 00/72463 A2).

Raichle does not explicitly teach storing information about an associated vehicle such as the vehicle identification number; however, Raichle does teach providing a memory system which includes non-volatile memories for storing data associated with the vehicle control units coupled to the sensors and actuators (column 4, lines 29-44) and further teaches providing a

database located at the remote diagnostic technician's site for tracking various faults associated with particular make and/or model of vehicles (column 5, lines 57-60). A skilled artisan would have been motivated to find a prior art solution to track the particular make and/or model of vehicles in Raichle in order to repair faults such as a defective part associated with the particular make and/or model. Witkowski teaches a wireless communication module similar to that in Raichle (compare Witkowski's module 14 in Figure 2 and Raichle's module 100 in Figure 1A). Raichle teaches storing vehicle identification number in order to tag the vehicle with warranty and part information associated with its various parts (page 17, lines 7-22). Vehicle identification numbers provide information regarding the make and/or model of the vehicle. Therefore, it would have been obvious to incorporate Witkowski's teachings into Raichle for the reason that particular make and/or model of vehicle may have common faults pertaining to defective parts that are covered by warranties and have been alerted by the manufacturer of the part.

With respect to the claims below, references to the prior art appear in parenthesis.

Claims

13. The system of claim 1, wherein the computer comprises a memory operable to store information about an associated vehicle **(Witkowski teaches providing VIN for tracking warranty and part information (page 17, lines 7-22) wherein Raichle suggests providing a way of determining the vehicle's make and/or model (column 5, lines 57-60)).**

14. The system of claim 13, wherein the information comprises the vehicle identification number **(Witkowski teaches providing VIN for tracking warranty and part information (page 17, lines 7-22) wherein Raichle suggests providing a way of determining the vehicle's make and/or model (column 5, lines 57-60)).**

31. The method of claim 21, further comprising storing information about an associated vehicle **(Witkowski teaches providing VIN for tracking warranty and part information (page 17, lines 7-22) wherein Raichle suggests providing a way of determining the vehicle's make and/or model (column 5, lines 57-60))**.

7. Raichle does not teach the bus connector124 being an assembly line diagnostic link connector having sixteen pins. Witkowski suggests that the wireless communication module similar to Raichle's can be used during the assembly operation (page 12, line 4 to page 13, line 6). Thus, it would have been obvious to use Raichle's invention during the assembly operation for the reason that Witkowski explicitly suggests such use in addition to the use of the wireless communication module in a remote diagnostic system (page 11, line 4 to page 12, line 2) that is similar to that in Raichle. The number of pins would have been an obvious design choice in that Raichle's symbol for the bus lines on either side of the connector 124 indicates a plurality of lines (Figure 1A) and sixteen pins does not appear to be an unusual amount considering that there can be a plurality of vehicle control units with multiple communication protocols within the same vehicle (column 9, lines 1-5).

With respect to the claims below, references to the prior art appear in parenthesis.

Claims

16. The system of claim 1, wherein the bus connector comprises an assembly line diagnostic link connector having sixteen pins **(Witkowski suggests using the remote diagnostic system in an assembly operation**.

8. Raichle does not teach a high-speed, short-range wireless communication device; however, Raichle does suggest using a radio packet communication device (column 4, lines 18-

22). Witkowski teaches using the Bluetooth standard, which is a high-speed, short-range radio packet communication device, in their remote diagnostic system (page 4, lines 20-29). It would have been obvious to use Bluetooth as the radio packet communication device since a skilled artisan would have been motivated to incorporate a wireless standard that is known to work with a remote diagnostic system.

With respect to the claims below, references to the prior art appear in parenthesis.

Claims

20. The system of claim 1, wherein the wireless communication device is a high-speed, short-range wireless communication device **(Witkowski teaches using Bluetooth in a remote diagnostic system (page 4, lines 20-29))**.

32. The method of claim 21, wherein the wireless link comprises a high-speed, short-range wireless link **(Witkowski teaches using Bluetooth in a remote diagnostic system (page 4, lines 20-29))**.

41. The system of claim 35, wherein the wireless link comprises a high-speed, short-range wireless link **(Witkowski teaches using Bluetooth in a remote diagnostic system (page 4, lines 20-29))**.

46. The system of claim 43, wherein the wireless communication device is a high-speed, short-range wireless communication device **(Witkowski teaches using Bluetooth in a remote diagnostic system (page 4, lines 20-29))**.

9. Claims 18 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raichle et al. in view of Witkowski et al. and Haartsen et al. ("Bluetooth-A new Low-Power Radio Interface Providing Short-Range Connectivity").

Raichle does not teach the processor storing a sufficient amount of messages and transmitting the message when a sufficient amount is present in the message buffer. A message buffer is inherent in Raichle since messages destined to the remote diagnostic technician must be packetized before transmission (Memory 108 appears to be the message buffer for the processor 102 (column 4, lines 28-44) since non-volatile memory 118 and 120 holds program specific data and received vehicle data needs to be packetized with addressing information in order to transmit over the wireless link (column 5, lines 5-12)).

Witkowski suggests the obvious modification of using the Bluetooth standard in the remote diagnostic system of Raichle (see above section 9). Witkowski does not teach the specifics of the Bluetooth standard. Haartsen provides the details of the Bluetooth standard, wherein the payloads may vary from 0 to 2745 bits (page 1653, column 2, first full paragraph) in order to accommodate a high data rate. Raichle's system modified to use the Bluetooth standard could accommodate a high data rate between the wireless communication module and the remote diagnostic technician. Thus, waiting for a sufficient number of messages in a message buffer before transmitting over the wireless link would have been obvious for the reason that Bluetooth accommodates a high data rate depending on the size of the payload and a remote diagnostic technician may request data from a plurality of vehicle control units coupled to related sensors (a particular fault in a vehicle may involve checking a plurality of interrelated parts and their associated sensors), wherein the processor would have been waiting until all the data from the sensors are received before transmitting the data to the remote technician. It would have been inefficient to transmit the sensor data one at a time since the amount of packet control fields for a plurality of Bluetooth packets transmitted would have greatly exceeded the amount of payload data for a single sensor data compared to a single Bluetooth packet containing a plurality of sensor data.

With respect to the claims below, references to the prior art appear in parenthesis.

Claims

18. The system of claim 17, wherein the computer is operable to store a message in a buffer **(Memory 108 appears to be the message buffer for the processor 102 (column 4, lines 28-44) since non-volatile memory 118 and 120 holds program specific data and received vehicle data needs to be packetized with addressing information in order to transmit over the wireless link (column 5, lines 5-12))**, *determine whether a sufficient amount of such messages are present in the buffer* **(Bluetooth standard allows a high data rate based on the payload size (page 1653, column 2, first full paragraph), wherein the remote diagnostic technician in Raichle may request data from a plurality of related sensors when a vehicle fault involves a plurality of interrelated parts)**, *and transmit the messages if a sufficient amount of messages are present to manage messages to be transmitted over the wireless link* **(More efficient to transmit a payload with a plurality of interrelated sensor data than a series of individual sensor data payloads since less packet control fields are transmitted)**.

34. The method of claim 33, wherein managing messages to be transmitted over the wireless link comprises storing a message in a buffer **(Memory 108 appears to be the message buffer for the processor 102 (column 4, lines 28-44) since non-volatile memory 118 and 120 holds program specific data and received vehicle data needs to be packetized with addressing information in order to transmit over the wireless link (column 5, lines 5-12))**, *determining whether a sufficient amount of such messages are present in the buffer* **(Bluetooth standard allows a high data rate based on the payload size (page 1653, column 2, first full paragraph), wherein the remote diagnostic technician in Raichle may request data from a plurality of related sensors when a vehicle fault involves a**

plurality of interrelated parts), *and transmitting the messages if a sufficient amount of messages are present* **(More efficient to transmit a payload with a plurality of interrelated sensor data than a series of individual sensor data payloads since less packet control fields are transmitted).**

Allowable Subject Matter

10. Claim 19 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not anticipate or make obvious the feature of the processor claiming multiple addresses on the vehicle bus.

Claim

19. The system of claim 1, wherein the computer is further operable to claim multiple addresses on the bus **(Raichle's processor appears to require only a single address on the bus since all data is to the communication module 100 or from the module 100).**

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvin Marcelo whose telephone number is 571-272-3125. The examiner can normally be reached on Mon-Fri 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Melvin Marcelo
Primary Examiner
Art Unit 2616

May 28, 2006